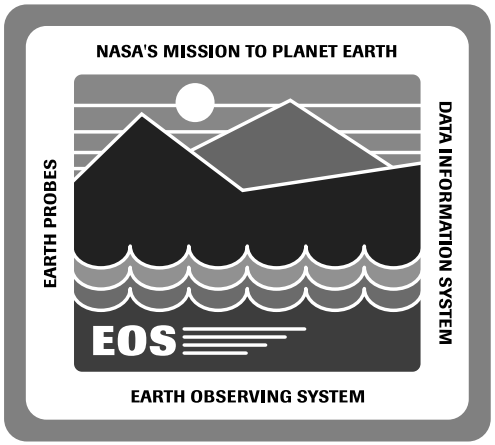
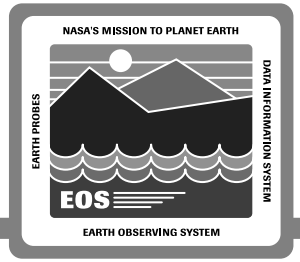


ECS Preliminary Design Period

Pete O'Neill

28 February 1995

Topics



- **Principles**
- **Objectives**
- **The Road to PDR**
- **System Level Community Involvement**
- **System Level Delivered Documentation**
- **Accomplishments**

Principles

Keeping the “Mandate” in focus

- **Science community**
- **NRC Panel on EOSDIS**

Meeting mission and scientific schedules

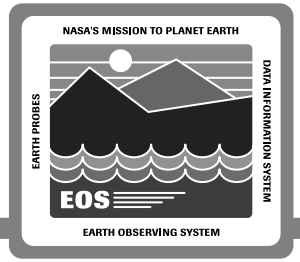
Maintaining community involvement and promoting collegiality

Promoting constancy in the devolution of the approved system design

Addressing and incorporating, where appropriate, IAS Review Panel recommendations

Incorporating approved SDR issue and RID responses into the design and/or other pertinent documents

SDR RID Summary

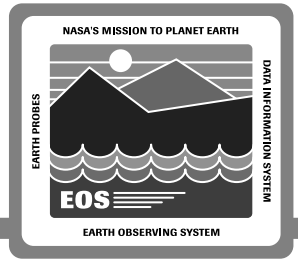


340 Total SDR RIDs

- **28 identified in SDR Review Board report**
- **6 Key Issue RIDS**

All RIDs are closed

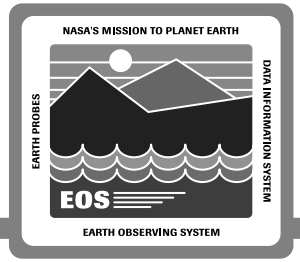
Key SDR RIDs



Six Key Issue RIDS

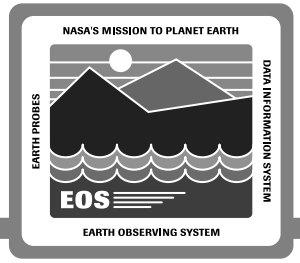
- **Billing & Accounting Approach**
  - **Reviewed/commented on HQ's latest billing policy**
  - **Function allocated to Release B**
- **Dynamic User Model**
  - **Since SDR have focused on need of science users**
  - **Ad hoc Working Group of Consumers (AHWGC) being formed to further refine**
- **Evolving Technology Risks, Maturity and Availability**
  - **Have deferred use of CORBA beyond Release B**
  - **Have prototyped many technologies/COTS products**
  - **Continue technology assessment activities**
  - **Membership in standard setting bodies**

Key SDR RIDs (cont.)



- **Data Dependencies**
  - **Re-evalated as part of AHWGP**
  - **Potential for subsetting to reduce network traffic**
- **Impact of Treating ISTs as External Interfaces**
  - **Generated IST Capabilities Document**
  - **Continued to prototype IST functionality with instrument teams participation**
- **Use of Object Oriented Design for FOS and Examination of use of NASA Heritage Code**
  - **Have selected certain heritage code for reuse by FOS**
  - **Development of encapsulation code where reuse exist**
  - **In addition, selectively reuse design of existing systems**

PDR Objectives



Allocate and expand requirements

Define architecture to the subsystem or CI level

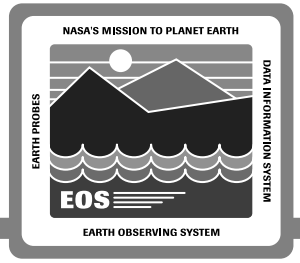
Demonstrate that the architecture satisfies the SDR system level design

Demonstrate a coherent design

Depict development, test and integration plans

Detail the management framework and approaches to the “illities,” etc.

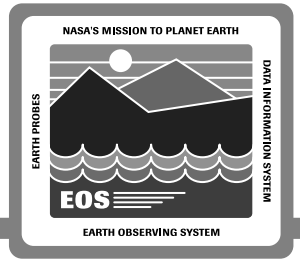
The Road to PDR



What we set out to do

- **Involve the user and the customer throughout the maturation of the preliminary design, building on existing panels, teams, etc.**
- **Allow independent segment progress to permit attainment of the preliminary design milestone within an overall window to conserve schedule**
- **Work design, process and management issues in real time**
- **Reduce formality and provide in-process looks at engineering work**

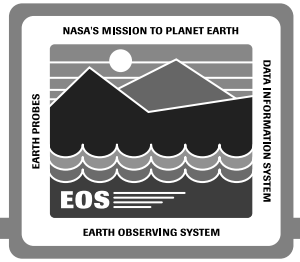
The Road to PDR (cont.)



The PDR season

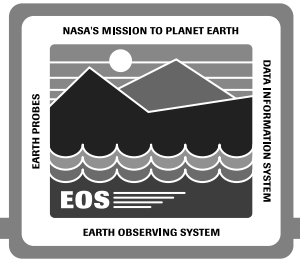
- **System & segment workshops and in process reviews**
- **Review copies of documents**
- **Empowered individual segment review panels**
  - **Crystallization and categorization of issues/RIDs**
  - **Decision maker assessment of segment technical design maturity**
- **Wrap-up panel validates segment board recommendations**
- **Streamlined Issue / RID resolution process**
- **Final documentation reflects incorporation of review process comments, etc. (insofar as possible)**

System Level Community Involvement



Capacity/performance dynamic modeling workshop	**Dec 94**
Requirements engineering workshop	**Jan 95**
Technical interface meetings GSFC, LARC, & MSFC DAACs	**Sept/Oct 94**
V0 - ECS data migration workshop	**Jan 95**
Integration & test workshop	**Jan 95**
Configuration engineering workshop	**Dec 94**
Security review and risk assessment	**Dec 94**
Risk management panels	**Dec 94, Jan & Feb 95**
M&O Telecons	**throughout period**

System Deliverables



V 0 Analysis Report

Preliminary ICDs -- Aster GDS, SCF, NSI, ADC, TSDIS, V0; the GSFC, & MSFC DAACs

Preliminary AM-1 S/C Analysis SW and DBDC ICDs

Risk Assessment Report

Trade-off Studies and Analysis Data

Life Cycle Cost Report

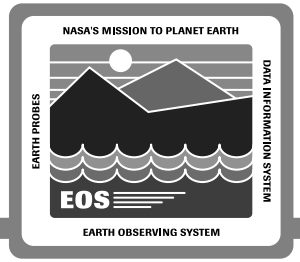
ECS Security Plan

Security Risk Analysis Report

Hazard Analysis Report

Security Sensitive Items List

System Deliverables (cont.)



Availability Models / Predictions

Reliability Predictions

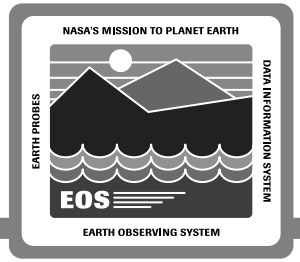
Failure Modes & Effects Analyses & CIL

Maintainability Predictions

S/W CIL List

Others (covered in subsequent presentations)

Accomplishments



- **Requirements Allocated**
- **Design Captured**
  - **interfaces defined**
  - **CI, subsystems defined**
  - **segment / system coherency captured**
- **Development, integration & test and release plans depicted**
- **Principles Validated**
- **SOW checklist met**
- **Segment PDRs complete** **“NO show - stoppers”**
- **Issues identified**
- **Substantial progress towards resolution of issues/RIDs**

Ready to begin detailed design

PDR RID Summary
(As of Feb 24)

	Key Issues	Priority 1	Priority 2	HAIS Approved
FOS	2	2	131	132
CSMS	5	55	93	45
SDPS	12	30	59	0